41 and **42**. The contact sensitive panel is grounded using a grounding loop G**1**. The top and bottom transparent substrates can be glass or plastic. For example, the top and bottom transparent substrates **10** and **20** can be polyester plastic, with PET (polyethylene terephthalate) being a representative example. Preferably, the top transparent substrate is flexible plastic suitable for frequent contact. While **FIGS. 4 and 5** describe a contact sensitive panel with a specific structure, it can be appreciated that other structures can also be employed as long as the sensitive panel is a panel that responds to extend stimulus in the form of physical contact with the panel.

[**0022**] The top substrate **10** is provided with a conductive bottom surface. As shown in the illustrated embodiment, a top conductive film **12** is coated on the entire lower surface of the top transparent substrate **10**. The bottom substrate **20** is provided with a conductive top surface. As shown in the illustrated embodiment, a bottom conductive film **22** is coated on the entire upper surface of the bottom transparent substrate **20**. The top and bottom conductive films **12** and **22** act as resistive layers and can be ITO (indium tin oxide), tin layer, ATO (antimony-tin-oxide) or the like. The insulating spacer **60** is disposed between the top conductive film **12** of the top transparent substrate **10** and the bottom conductive film **22** of the bottom transparent substrate **20** for separation thereof.

[**0023**] The sensing lines **31**, **32**, **41** and **42** can be metal lines such as silver lines and can include four sensing lines, two top sensing lines **31** and **32** disposed on the two opposite edges of the top conductive film **12**, and two bottom sensing lines **41** and **42** disposed on the opposite edges of the bottom conductive film **22**. The bottom sensing lines **41** and **42** are arranged at a right angle to the top sensing lines **31** and **32**. The sensing lines can further include four transmission lines **31***a*, **32***a*, **41***a* and **42***a* respectively. A spacer made of an insulating material, for example an adhesive (such as a double-side adhesive) **50** is disposed between the edges of the top and bottom conductive films **12** and **22**, to separate the conductive elements (e.g., contuctive film **12**, sensing line **31** and **32**) on the substrate **12** from the conductive elements (e.g., conductive film **22** and sensing line **41** and **42**) on the substrate **22**.

[**0024**] A grounding conductor, such as a grounding loop is provided to surround the sensing lines **31**, **32**, **41** and **42** (i.e., outside the active area of the touch panel. An insulating region I**1** is disposed between the top and bottom transparent substrates **10** and **20**, to separate the grounding loop G**1** from the conductive films **12** and **22**, or from the sensing lines **31**, **32**, **41** and **42**. The grounding loop G**1** is connected to an external ground terminal (not shown in **FIG. 5**) by a grounding line G**1***b*. For example, the external ground terminal can be a chassis ground or a ground terminal of a touch panel controller, of a LCD panel display, or an electric apparatus.

[**0025**] In addition, in this case, the grounding loop G**1** can be a conductive stacked film as shown in **FIG. 5**. The grounding loop G**1** includes a first conductive film **12***a*, a second conductive film **2***a* and a third conductive film **22***a*. The first conductive film **12***a* and the third conductive film **22***a* can be made of ITO, tin oxide or antimony-tin-oxide (ATO). The first conductive film **12***a* and the top conductive film **12** can be formed, for example, on the lower surface of the top transparent substrate **10** at the same time. The third conductive film **22***a* and the bottom conductive film **22** can be formed on the upper surface of the bottom transparent substrate **20** at the same time. In this case, the second conductive film **2***a* can be a metal film, such as a silver film, having a thickness as the thickness of the spacer **50**. While **FIG. 5** shows a three-layer structure for the grounding loop G**1**, it can take the form of a single layer conductive structure having a thickness extending from the bottom of substrate **10** to the top of substrate **20**, without departing from the scope and spirit of the present invention.

[**0026**] The second conductive film **2***a* need not extend completely along the loop G**1**, and may be omitted completely as long as the first and third conductive films **12** and **22** are conductively coupled. For example, the second conductive film **2***a* may be replaced by a non-conductive layer, or the first and third conductive films **12** and **22** may be spaced apart by air, but the first and third conductive films **12** and **22** are otherwise conductively coupled to each other, or they are separately conductively coupled to the external ground.

[**0027**] In the embodiment of the present invention shown in the figures, the grounding loop G**1** is physically and electrically separated from the conductive films **12** and **22**, and the sensing lines **31**, **32**, **41** and **42** by the insulating region I**1**. In this embodiment, to electrically insulate from conductive films **12** and **22** and the sensing lines **31**, **32**, **41** and **42**, the insulating region I**1** can be made of an insulating material, such as SiO_2, or the insulating region I**1** can be an air space or a space filled with gas.

[**0028**] As shown in **FIG. 6**, in the display system **120**, a display element such as an LCD element **117** is operatively coupled to the touch panel **11**, wherein locations on an active area of the contact sensitive panel correspond to locations on a display area of the display element. When the top transparent substrate **10** is contacted by, for example, a finger or stylus, electric contact occurs between the two conductive films **12** and **22**. The sensing lines **31**, **32**, **41** and **42** transmit current and/or voltage signals to a touch panel controller **113** (see **FIG. 6**) via signal transmission lines **31***a*, **32***a*, **41***a* and **42***a*. The touch contact location can be determined from such signals using conventional schemes well known in the art.

[**0029**] Because of the grounding loop, a display system with touch panel can dissipate ESD charges from the touch panel to an external grounding terminal, such as that of a plate display or an electric apparatus, protecting the electric elements in the touch panel controller from ESD damage.

[**0030**] Although a four-line panel is taken as an example in the above descriptions, the present invention also suitable for use in five-line, six-line or eight-line type touch panels.

[**0031**] In the embodiment of the present invention shown, the grounding loop surrounds the sensing lines, is electrically insulated therefrom and from the top and bottom transparent substrates, and is electrically coupled to an external grounding terminal. Accordingly, the electric elements in the touch panel controller are protected from ESD damage.

[**0032**] **FIG. 7** schematically shows an electronic device **130** deploying a display system **132** having the touch panel **11** described above. The electronic device **130** may be a